track and a broader base than might otherwise occur, BellSouth encourages the Commission to begin a proceeding under Section 706 of the Act as quickly as possible. The mechanisms made possible through such a proceeding could provide the best solution to achieving the goal of making accessible advanced telecommunications capabilities on a much more widespread basis than could otherwise be possible.

IV. CONCLUSION

The framework presented above provides an approach for the Joint Board and the Commission to fulfill their statutory responsibility regarding universal service. A particularly important aspect of the framework is that it not only achieves the intent of Congress to replace implicit support with an explicit "specific, predictable and sufficient" mechanism, but also includes steps to reduce the amount of support through a modest increase in subscriber line charges, creating a market that is more conducive to local competition.

In order to proceed, it will be necessary for the Joint Board to act to select a framework for the interstate universal service fund. Once that framework is selected, the details around the framework can be filled out. The debate can shift from what the

universal service fund should be, to the calculation of the fund's size and its

administration.

Respectfully submitted,

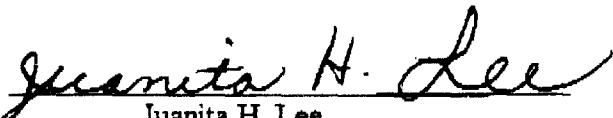BELLSOUTH CORPORATION
BELLSOUTH TELECOMMUNICATIONS, INC.

By: _____
M. Robert Sutherland
Richard M. Sbaratta
Rebecca M. Lough

Their Attorneys
Suite 1700
1155 Peachtree Street, N.E.
Atlanta, Georgia 30309-3610
(404) 249-3386

Date: April 12, 1996

CERTIFICATE OF SERVICE

I certify that I have this 12th day of April, 1996 served all parties to this action

with a copy of the foregoing COMMENTS by placing a true and correct copy of the same

in the United States Mail, postage prepaid, addressed to the parties listed on the attached

service list.

Juanita H. Lee

Juanita H. Lee

The Honorable Reed E. Hundt, Chairman
Federal Communications Commission
1919 M Street, N. W. - Room 814
Washington, D.C. 20554

The Honorable Andrew C. Barrett, Commission
Federal Communications Commission
1919 M Street, N. W. - Room 826
Washington, D.C. 20554

The Honorable Susan Ness, Commissioner
Federal Communications Commission
1919 M Street, N. W. - Room 832
Washington, D. C. 20554

The Honorable Julia Johnson, Commissioner
Florida Public Service Commission
Capital Circle Office Center
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

The Honorable Kenneth McClure, Vice Chairman
Missouri Public Service Commission
301 W. High Street, Suite 530
Jefferson City, MO 65102

The Honorable Sharon L. Nelson, Chairman
Washington Utilities and Transportation Commission
P. O. Box 47250
Olympia, WA 98504-7250

The Honorable Laska Schoenfelder, Commissioner
South Dakota Public Utilities Commission
500 E. Capital Avenue
Pierre, SD 57501

Martha S. Hogerty
Public Counsel for the State of Missouri
P. O. Box 7800
Harry S. Truman Building, Room 250
Jefferson City, MO 65102

Whiting Thayer
Federal Communications Commission
200 L. Street, N. W., Suite 812
Washington, D. C. 20036

Deborah S. Waldbaum
Colorado Office of Consumer Counsel
1580 Logan Street, Suite 610
Denver, Colorado 80203

Alex Belinfante
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Larry Povich
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

COMMENTS ON UNIVERSAL SERVICE .

Federal-State Joint Board on Universal Service

CC Docket No. 96-45

by

Kenneth Gordon and William E. Taylor

April 12, 1996

TABLE OF CONTENTS

COMMENTS ON UNIVERSAL SERVICE[1]

I.   INTRODUCTION AND SUMMARY

This report analyzes the economic issues associated with the Federal Communications Commission's (FCC's) Notice of Proposed Rulemaking (NPRM) on universal service.[2]   We agree with the Commission that the Telecommunications Act of 1996 (the Act) requires replacement of the current implicit subsidies with "explicit," "sufficient" and "competitively neutral" universal service funding by all carriers.[3] We also agree that past FCC rebalancing efforts have brought substantial efficiency gains without harming universal service.[4] Based on this experience and on fundamental economic efficiency principles, we recommend that the FCC and the Joint Board resume the rebalancing efforts begun in the mid-1980s. Furthermore, we conclude that additional rate rebalancing (i.e.. increasing flat-rate charges and reducing usage-sensitive charges) together with targeted subsidies to reduce internal subsidies would <u>not</u> harm universal service. Such a shift would be entirely consistent with "a fundamental underlying principle of the 1996 Act ... the Congressional desire 'to provide for a pro-competitive and de-regulatory national policy framework ...'"[5] Such rate rebalancing would also be consistent with the observation in the NPRM that "the Act specifically provides that

---

[1] The authors are Senior Vice Presidents of National Economic Research Associates, Inc. Dr. Gordon served as chairman of the Public Service Commissions of Maine and Massachusetts and at the Federal Communications Commission (FCC). Dr. Taylor has studied economic problems of telecommunications regulation at Bell Laboratories, Bellcore and NERA, filing testimony before the FCC, the Canadian Radio-Television and Telecommunications Commission and many state regulatory commissions.

[2] *Federal-State Joint Board on Universal Service, Notice of Proposed Rulemaking and Order Establishing Joint Board*, CC Docket No. 96-45 (released March 8, 1996).

[3] *Id.*, at ¶113 citing the Act at sec. 101(a), §254(d)-(e). Furthermore, according to §254(b)(4)-(5), there "should be ... sufficient Federal and State mechanisms to preserve and advance universal service."

[4] *Id.*, ¶113.

[5] *Id.*, ¶8.

telecommunications services — not just the narrow category of telephone exchange service — be affordable."[6] To the extent that rate increases for one service are offset by decreases for others, "telecommunications services" would be no less affordable after rates are rebalanced.[7]

We also recommend that the FCC determine the initial level of universal service support based on the incumbent LECs' embedded cost. We show that this policy combined with "portable" universal service funding would be consistent with competitive, cost-based pricing. Thus, our proposal is consistent with competitive markets and would ensure that prices move towards competitive levels without the added cost and complexity of an externally-administered bidding process. Finally, we show that idealized proxy cost models produce, at best, hypothetical estimates that provide only a starting point to calculate actual network costs. Such estimates are inferior to incremental costs derived based on actual network configurations.

II.   BASIC ECONOMIC PRINCIPLES

A. Replace Implicit by Explicit Support and Make All Support Competitively Neutral

The first economic principle is that explicit support should replace the internal subsidies that currently support universal service. This principle is consistent with the Act's requirement that "[t]here should be specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service."[8] Implicit subsidies (of the kind that are currently built into certain service prices) mis-state the actual relationship among prices and costs. They cause

---

[6] *Id.*, ¶14.

[7] For example, increases in local exchange rates offset by decreases in toll prices could cause the average subscriber bill to fall, so that "telecommunications services" were more affordable even though local exchange prices increased.

[8] The same point is repeated in the Act, §254(d) on telecommunications carrier contribution: "Every telecommunications carrier that provides interstate telecommunications services shall contribute, on an equitable and nondiscriminatory basis, to the specific, predictable, and sufficient mechanisms established by the Commission to preserve and advance universal service."

the wrong signals to be sent to the price system (on which efficient resource allocation in a market economy depends) and, as a consequence, distort the entry, exit, and expansion decisions of market participants. In contrast, explicit support (coupled with implementation of the principles discussed below) will foster more efficient relationships among prices and costs and send the proper signals to guide the decision-making of those participants.

The second economic principle is that universal service support should be recovered in a competitively neutral fashion from all telecommunications carriers so that the determination of the carrier that actually provides universal service would not depend on whether it was also the source of support. By de-linking the source of support from the provider of service, any impediment to the provision of service by only the most efficient providers would be removed. This principle is also recognized by the Act, which states that "All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service."[9]

In essence, these two principles imply that current universal service funding by internal and other implicit subsidies built into the carrier access rates charged by local exchange carriers (LECs) should be completely replaced by competitively neutral forms of support. If this is not done, then the universal service funding mechanism would not be "sufficient... to preserve and advance universal service."[10]

Competitively-neutral support could be likened to the use of broad-based taxes in the wider economy for raising a certain amount of support. A general or broad-based sales tax does not distort relative price-cost relationships and, therefore, minimizes any distortion of

---

[9] The Act, §254(b)(4) (emphasis added).

[10] The Act's §254(e)-(f) also support such reform at the state level by making intrastate universal service support explicit, competitively neutral and assessed on an equitable and non-discriminatory basis to all providers of intrastate telecommunications services, and not a burden on the Federal universal service support mechanisms.

consumption (or reduction of social or consumer welfare).[11] Thus, a broad-based method of paying for universal service would be more efficient than the present system that takes contribution from only certain services or service providers.

The economic efficiency of a broad-based method of payment for universal service could be further improved by taking account of the price elasticity of demand for various services. Usage services tend to be relatively more price-elastic than subscriber access services (for which costs tend not to vary with usage). Because of this, efficiency could be increased by recovering as much of the non-traffic-sensitive (NTS) costs as possible directly from final customers or "end-users" on a flat-rate basis. Usage services should contribute to universal services as little as possible, with the most price-elastic such services contributing the least. This approach would allow usage service prices to remain close to economic costs and thereby allow information age services to grow to their full potential.

B. Restrict Support Only to Essential Services that are in the Public Interest and Consistent with Competition and Economic Efficiency

Economic efficiency also requires that the subsidies be minimized in order that prices be distorted as little as possible. Even competitively neutral subsidies distort prices and choices among goods and services. Thus, the range of goods and services eligible for support should be chosen carefully and any necessary subsidies should be kept to a minimum. Such an approach is consistent with Congress' desire to provide for a procompetitive and de-regulatory national policy framework. It is also consistent with the Act's mandate to the Joint Board and the FCC

---

[11] While such a tax would reduce purchasing power and, hence, likely curtail consumption, there would be none of the inefficient substitution of an untaxed good for a taxed good that could occur when the consumption of only some goods were taxed but not of others. In other words, while broad-based taxes impose only income effects on consumption, specific taxes — by distorting relative price-cost relationships — produce in addition more substantive substitution effects on consumption.

to consider "such other principles as [they] determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act."[12]

In sum, to serve the public interest, regulators should limit the overall level of support and shift to more efficient forms of support, targeted more narrowly at low-income consumers and high-cost areas. As explained in Section IV, it is possible to design targeted support that would be sufficient to preserve universal service without conflicting with the public interest in promoting competition and economic efficiency.

Section 254 of the Act lists the services that are to be considered for universal service support and, in the process, reveals the tension between the desire to expand the concept of universal service and the economic efficiency, competitive and deregulatory goals of the Act. According to this section of the Act:

> (c) DEFINITION- (1) IN GENERAL-....The Joint Board ... and the Commission in establishing, the definition of ... universal service ... shall consider the extent to which such telecommunications services— (A) are essential to education, public health, or public safety; (B) have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers; (C) are being deployed in public telecommunications networks by telecommunications carriers; and (D) are consistent with the public interest, convenience, and necessity.[13]

The operation of market choices in subsection (B) is indeed the key to efficiency; however, for those choices to be meaningful, they must be made on the basis of market prices. When certain services are offered at subsidized rates, the "operation of market choices" cannot be truly observed because if market forces set higher, cost-based rates, "the substantial majority of residential customers" might not subscribe to those services. Similarly, when other services are priced well above cost to provide universal service support, it is equally hard to observe true "market choices" because at lower, cost-based rates, those supporting services would be

---

[12] The Act, §254(b)(7).

[13] *Id.*, §254(c)(1).

consumed in quantities greater than those observed. Subsection (B) would also have to be tempered by subsection (D) which requires consideration of the "public interest." Because the concept of public interest includes consideration of economic efficiency, excessive amounts of support provided without regard to efficiency could prevent deployment and consumption of new services and, thus, harm the public interest. As we show in Section V, however, these tensions can be resolved by (i) narrowly specifying the services to be supported and (ii) demonstrating that only "essential" services (those that possess additional social value not evident from market prices alone) be eligible for such support.

III. APPLYING THE PRINCIPLES TO INTERSTATE ACCESS CHARGES

A. The Basic Problem

Applying the economic principles discussed above to derive an "interstate" universal service fund in the context of the Act, requires (i) identifying the services to be supported, (ii) calculating the amount of support needed by those services; (iii) determining the fraction of the support that should be recovered from interstate services, and (iv) determining the means for raising that support.

The NPRM identifies five categories of (essentially intrastate) services as being eligible for universal service support. These include voice grade access service, touch-tone, single party service, access to emergency services (911 and enhanced 911), and access to operator services.[14]

As explained in greater detail in Section C below, the level of support per residential line should be based initially on the difference between the incumbent LEC's per-line embedded cost and the rate that is set for the local residential services that fall within the aegis of universal service. Under current pricing and jurisdictional cost allocations, BellSouth's

---

[14] NPRM, ¶9.

current conservative estimate of its annual cost[15] of providing universal service is about $4.8 billion, of which it recovers only about $2.8 billion from basic local residential service and interstate subscriber line charge (SLC) revenues. Thus, the support based on these data is almost $2.0 billion per year. BellSouth currently receives roughly half of this support (about $1.0 billion) from three specific interstate revenue streams: the carrier common line (CCL) charge, the interconnection charge ("RIC"), and the Federal Universal Service Fund. According to the NPRM:

> (t)he current CCL charge appears to be inconsistent with the directives of the 1996 Act that universal service support flows 'be explicit' and be recovered on a 'nondiscriminatory basis' from all telecommunications carriers providing interstate telecommunications service.[16]

Thus, for BellSouth alone, at least $1.0 billion of support (currently raised through implicit subsidies) needs now to be recovered explicitly on an equitable, nondiscriminatory, and competitively neutral basis.[17]

The current system of interstate access charges has benefited from substantial reforms undertaken by the FCC, e.g., the phasing-in of a $3.50 SLC per residential line and changes in the local transport rate structure. However, the entire system is still based on an artificial allocation (of roughly 25 percent) of the LECs' NTS revenue requirement to interstate services. Only by pure coincidence would prices based on such arbitrary allocations resemble those based on proper economic principles. Also, because the FCC and state regulators each address only the portion of the revenue requirement over which they have jurisdiction, it cannot be assumed that the correct application of economic principles in any one jurisdiction would lead

---

[15] Comments of BellSouth Telecommunications, in re *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45.

[16] NPRM, ¶113.

[17] The $1.0 billion of annual interstate support to Universal Service is conservative because (except for the interconnection charge) it does not take into account contribution (price less incremental cost) recovered from other carrier access services, including local switching and transport.

automatically to a correct <u>overall</u> result. As discussed above, any revenue shortfall for universal service should be recovered through a competitively neutral charge that can be imposed on all providers of telecommunications services. In principle, since jurisdictional distinctions have no economic meaning, this charge should be based on total interstate and intrastate revenues. However, since the bulk of the interstate revenues that the LECs currently receive are designed to support basic local residential service, these revenues should be excluded from those subject to the universal service surcharge.[18]

B. Rebalancing and Replacing Implicit with Explicit Support .

How should the principles of the Act be applied to replace the implicit interstate sources of support that were identified above? First, we should minimize the necessary support. That is, we should resume the FCC policies of the mid-1980s to move rates closer to costs. The rate structure should recover as much of the NTS costs as possible from the services that cause those costs, i.e., from basic access service, by means of flat NTS prices such as SLCs. Economic efficiency requires recovering costs of all services — including universal services — from the causers of those costs to the greatest extent possible. Hence, NTS costs should be recovered from end-users on a flat-rate basis to the greatest extent possible.

Second, the remaining interstate revenue requirement — that not recovered through SLCs — could be recovered indirectly from those who use access lines to originate and terminate interstate calls by assessing a competitively neutral charge to all providers of interstate services. More specifically, we recommend that contributions be based on the end-user interstate revenues of those service providers. This allocation would avoid (i) the pricing distortions caused by per-minute or usage-based charges, (ii) the need to come up with arbitrary "'equivalency ratios' for calculating contributions owed by providers ... that were not

---

[18] Ultimately, if it is possible to solve the jurisdictional issues, the Joint Board should develop the correct approach to collect the needed contribution when that amount has been determined and then apply that approach to overall telecommunications revenues. However, this cannot be done without coordinated state and FCC action to ensure recovery of the entire shortfall.

sold on a per-line or per-minute basis ...,"[19] and (iii) the need to determine how much an inter-exchange carrier (IXC) should contribute per line. Using revenues from sales of interstate services to end-users would also avoid unnecessarily taxing providers of universal service who are the intended recipients of the support.

C. Basing the Initial Level of Support on Incumbent's Embedded Cost

The NPRM seeks comment on the methodology for "... determining the level of support required to assure that carriers are financially able to provide ... universal service ... in rural, insular, and high-cost areas."[20] It asks that the methodology proposed must be (i) simple to administer, (ii) technology-neutral, (iii) designed to produce the least amount of support needed to achieve the Act's universal service goals, (iv) equitable and non-discriminatory in the burden it imposes on competitors, and (v) based on distribution procedures that are "direct, explicit, and specific."[21] More specifically, if the determination of the support should be based on some measure of the carrier's cost of providing universal service, the NPRM asks whether embedded costs or forward-looking costs should be used for that purpose.[22]

Once the appropriate basic local service rate ("basic rate" hereafter) has been determined,[23] the amount of support provided per end-user served (or, more precisely, per end-user line) should be <u>initially</u> set as the difference between the <u>incumbent</u> universal service provider's embedded cost per line and the basic rate. We emphasize the fact that this difference between the incumbent carrier's embedded cost and the basic rate be used to set only the initial

---

[19] NPRM, ¶124.

[20] *Id.*, ¶27.

[21] *Id.*

[22] *Id.*, ¶32.

[23] Whether a single rate applies state-wide or the rate is deaveraged and allowed to vary by serving areas such as wire centers is not the issue here. Nor does this method depend on knowing whether support is limited to particular categories of users (e.g., residential and/or single-line business). All that matters is that support be provided, as the Act requires, to users in rural, insular, and high-cost areas, and that the support be based on <u>both</u> the cost of providing service and the rate set for it.

level of support because, as the example below will show, the level of support needed will subsequently come to depend on the forward-looking costs of competing universal service providers once the market mechanism takes over. In other words, our methodology prescribes only the manner for setting the initial level of support but relies on the market mechanism for subsequent changes in that level.

The market mechanism that we envision would eventually determine the level of support has three components, (i) competition among eligible telecommunications carriers (ETCs), (ii) full portability of the support,[24] i.e., availability of the support to any ETC that actually provides basic local service to a user, and (iii) price signals. The market environment in which such a mechanism would operate would likely include one or more ETCs in a given serving area, each willing to provide basic service at or below the set service rate.

In this environment, competition among ETCs would be necessary to ensure that end-users are served only by the lowest-cost service provider. In turn, this would ensure that society's scarce resources needed to provide service and the support needed to sustain below-cost pricing of that service are both minimized. Effective competition could be introduced in each serving area by making the support fully portable, a departure from the present state in which the incumbent carrier retains the support regardless of the abilities of alternative carriers to provide basic service at lower cost. That competition, moreover, would be truly dynamic if ETCs providing service at any given time were to be assured of continuing as incumbents only as long as they could match or beat the prices offered for basic service by their competitors. If price signals worked as envisioned in this market, a competitor that could charge a lower rate for service than the incumbent while receiving the same amount of support, or could match the

---

[24] We envision a universal service fund that has three components: (i) the difference between embedded costs and rates, (ii) an amortization of current depreciation reserve deficiencies, and (iii) the cost of Lifeline and Linkup programs. While the first and third components should be fully portable, recovery of any reserve deficiency amortization should be confined to the firm that incurred the deficiency.

incumbent's rate while requiring a lower level of support, would successfully win the right to serve the end-user.

The following hypothetical example illustrates how an initial level of support based on the incumbent carrier's embedded cost would eventually result in least-cost provision of basic service. First, assume that the incumbent carrier's embedded cost of providing basic service in a given serving area is $25 per line per month. Second, assume that the retail rate for basic service in that area is $15 per line per month. Finally, assume that the incumbent's forward-looking long run incremental cost (LRIC) of providing basic service in that area is $20 per line per month.[25] The last assumption implies that the incumbent would save $20 per line per month when relieved of the burden of providing basic service or, alternatively, incur $20 per line per month when providing such service to an additional end-user. Under the proposed methodology, the initial level of support would be set, in this example, at $10 per line per month, i.e., the difference between the $25 embedded cost and the $15 basic rate.

To see what effects competition based on a fully portable universal service support can have in this hypothetical market, consider three alternative scenarios.

Scenario A: Potential competitors all have LRICs that exceed the incumbent's embedded cost of $25 per line per month.

Scenario B: At least one competitor has a LRIC that is higher than the incumbent's LRIC of $20 per line per month but below the incumbent's $25 embedded cost.

Scenario C: At least one competitor has a LRIC that is below the incumbent's $20 LRIC.

Scenario A: In this scenario, none of the potential competitors could expect to win the opportunity to provide universal service in place of the incumbent. The incumbent ETC would likely fully recover its embedded cost of providing universal service, and the size of the support

---

[25] In this discussion, we assume for simplicity that a competitive provider of basic service would be willing to set the price for that service (plus the support) equal to its LRIC. The LRIC, however, is only a price floor. In reality, even under competition, a multiproduct firm would generally set the price (including support) to equal LRIC plus a reasonable contribution toward its shared and common costs.

would change only to the extent that the basic rate or the incumbent's embedded cost changed in the future. The $15 basic rate — presumably deemed to be affordable — would continue in place and the incumbent, by virtue of being the least-cost provider, would require the least amount of support from any universal service fund.

Scenario B: If at least one competitor has a LRIC below the incumbent's embedded cost, the market mechanism would use portability and price signals to determine which of the two ETCs should serve the end-user. For sake of illustration, suppose that the competitor's LRIC is $22 per line per month, i.e., $3 below the incumbent's embedded cost but $2 above the incumbent's LRIC. Given its cost and portability of the support, the competitor could afford to offer basic service at a rate of $12 per line per month, i.e., the $22 LRIC less the $10 support. This rate would be $3 below the basic rate charged thus far by the incumbent. While the competitor would seemingly be assured recovery of its LRIC, it would, however, not be assured of the opportunity to win end-users away from the incumbent. This is because the incumbent would still have the incentive to lower its own rate in order to compete for the end-users. Although the incumbent would lose net revenue by lowering its own rate to $12 or below (to match or undercut the competitor's rate), that loss would be less than that which could occur from holding its rate at $15 and losing end-users in the process. By lowering the rate to $12 in order to keep the end-user, the incumbent would sacrifice $3 in net revenue. By losing the end-user altogether, the incumbent would sacrifice $5 in contribution to the excess of its embedded cost over its LRIC.[26] Thus, by choosing the former course of action, the incumbent could retain the end-user and still earn a $2 per line contribution toward the excess of its embedded cost over its LRIC (i.e., $22 in total revenue including support less the $20 LRIC).

In this scenario, the level of support toward the incumbent's embedded cost would decline and the attendant losses — if not offset by cost reductions — would be absorbed by the

---

[26] By losing the end-user, the incumbent would "save" its LRIC, namely, $20. It would also sacrifice $25 in total revenue, namely, the $15 rate plus $10 in support. Therefore, it would make a net loss of $5 per line.

incumbent's shareholders. The rate for basic service, however, would fall below the level initially deemed affordable and necessary to support universal service objectives. Most importantly, this decline in the rate would occur ultimately not in response to the incumbent's embedded cost but to the potential competitor's LRIC.

The observed decline in the market price for local exchange service would signal to the regulator the fact that universal service support could be reduced. An alternative — but financially equivalent — result in this scenario could be that the basic rate would remain at the $15 level considered to be affordable but the incumbent would now only require (and receive) support per line of $7, i.e.. $3 below the level initially determined. Either way — whether the rate fell to $12 at a $10 level of support or the rate stayed at $15 but the support was reduced to $7 — the threat of competition from another carrier with a LRIC below the incumbent's embedded cost would have a salutary effect on the universal service system. Once again, the least-cost provider would serve the market and. in the process, minimize the amount of support needed. Even though the initial level of support was set using the incumbent firm's embedded costs, the driving force behind the reduction in support would be the presence of a low-cost competitor, not a measured reduction in the incumbent's embedded costs.

Scenario C: When at least one competitor's LRIC is below the incumbent's LRIC, that competitor would likely begin to displace the incumbent as the provider of universal service for many customers. Again, for illustration, assume the competitor's LRIC is $18 per line per month, i.e., $2 below the incumbent's LRIC. In this case, the competitor could afford to lower its rate to $8 per line and still recover its LRIC ($8 rate plus $10 in support). In contrast, the incumbent would fail to match the competitor's rate because doing so would cause even larger losses of net revenue than those from simply losing the end-user. By giving up the end-user, the incumbent would only lose the $5 contribution toward the excess of its embedded cost over

its LRIC. But, by trying to match the competitor's $8 rate, the incumbent would lose an additional $2.[27]

In this scenario, the basic rate could fall to $8 per line at a $10 per line level of support. Equivalently, the rate could stay at the affordable level of $15 while the needed amount of support could shrink to $3 per line. Either way, the least-cost provider would win out and competition would deliver the economically efficient outcome. The amount of support would be minimized and the driving force behind the competitive process would once again have been the forward-looking LRIC of the competitor, even though the initial level of support was set in relation to the incumbent's embedded cost.

The three scenarios in this hypothetical example illustrate how the market mechanism could be relied upon to convey the proper price signals and for the market to be served only by the least-cost ETC. The example also demonstrates how the level of support could be adjusted down over time (at a constant basic rate) as more efficient competitors tried to enter the market or, alternatively, how the basic rate itself could be lowered over time (at a constant level of support).[28] In reality, costs, and possibly rates, could vary among end-users or serving areas. Moreover, the quality of service and the end-user's taste for various services could also vary. Consequently, there could be competition for certain end-users or in certain serving areas, but not others. As a result of such competition, the incumbent could retain certain end-users or serving areas but lose others. The hypothetical example, nevertheless, conveys the efficacy of setting the initial level of support in relation to the incumbent's embedded cost and then relying upon competition and the market mechanism for subsequent fine-tuning.

---

[27] By matching the competitor's $8 rate, the incumbent could expect to earn only the $8 plus $10 in support, i.e., $18 per line. That would be $2 below its LRIC and $7 below its embedded cost.

[28] Reductions in the level of support could be accomplished in a number of ways. One possibility is for regulators to periodically lower the level of support by the amount of short-term rents that the most efficient entrant could earn by displacing the incumbent, i.e., by the sustainable difference between the incumbent's LRIC and the entrant's (lower) LRIC. Another possibility is for the support to be capped and adjusted by some measure of inflation along with a built-in offset factor (akin to a productivity offset in price cap regulation).

The methodology proposed here may now be evaluated in terms of the five requirements placed by the NPRM.

Administrative simplicity: The administratively simplest methodology should minimize the burden on regulators on three fronts: (i) determining the initial level of support, (ii) adjusting the support or the basic rate over time, and (iii) determining the least-cost ETC for a given serving area. The methodology proposed here succeeds on all three fronts. The initial level of support can be easily determined from two readily available figures — the basic rate which is set on the basis of an appropriate affordability criterion and the incumbent's embedded cost which can be readily inferred from information in the carrier's own books of account and from publicly available ARMIS data.[29] Adjustments to the level of support and/or the basic rate would be driven by potential or actual entry by equally or more efficient competitors and the promise of full portability of the support. Price signals emitted by competitors would reflect their underlying forward-looking costs of providing service and would eventually ensure service by the least-cost provider. Regulators would have to neither make arbitrary picks among competing ETCs nor conduct expensive and unnecessary competitive bids[30] in order to determine the providers of universal service.

Technological neutrality: The proposed method of determining the level of support would encourage more efficient carriers to come forward and compete. Because the method tilts the likelihood of serving the market in favor of neither the incumbent nor its competitors, it would not influence the technology choices of the competitors. By assuring that the least-cost ETC would have the opportunity to serve the market, the proposed method would encourage potential competitors to seek out technologies that do not necessarily imitate that of the

---

[29] Automated Reporting Management Information System (ARMIS) reports containing actually incurred cost data are filed annually with the Federal Communications Commission by the larger local exchange carriers.

[30] We examine this issue in detail below.

incumbent. Instead, competitors would have the incentive to minimize the costs of providing service at a certain acceptable level of service quality and innovation.

Minimize needed support: The hypothetical example showed how, at a given level of the basic rate, the amount of support needed would be set initially at the minimum level and reduced over time by competitive forces.

Equitable and non-discriminatory burden: The proposed method would provide equal incentives to all competitors (incumbent and entrants alike) to compete for the opportunity to serve the market. No category of competitor would be unduly burdened by, e.g., having to recover certain costs that its competitors would not have to, or being denied the universal service support that its competitors would be entitled to.

Direct, explicit, and specific distribution: While the method of distributing the support is, in principle, a separate issue than the method of determining the appropriate level of support, the methodology proposed here makes it easy to size any explicit universal service fund and to distribute from it only the amounts per line that an ETC serving a particular serving area would be entitled to at any given time. The proposed method simplifies the process of determining how much support is needed and who should receive it when both demand and cost conditions vary across end-users and serving areas.

IV. HIGHER FLAT RATE CHARGES FOR SUBSCRIPTION WILL NOT RETARD UNIVERSAL SERVICE.

A. As Flat Rates for Service Rose (as Rates Were Rebalanced), Subscribership Rose in All Income Segments

The impact of telephone rate changes was a source of substantial controversy as the divestiture of AT&T was being implemented. At that time, some consumer advocates made dire predictions regarding the impact of higher residence rates on subscription to telephone

service.[31] The actual results since that time show that the FCC's partial rebalancing of rates through the phasing-in of SLCs and the reduction in toll rates beginning in 1985 and ending in 1989 did not harm telephone subscription. Thus, despite a rise in monthly flat rates from about $13.35 in 1984 to $17.53 in 1989 (largely attributable to the FCC increasing the SLC to $3.50 and tax increases totaling $0.45),[32] telephone penetration rose from about 91.4 percent in November 1983 to about 93.0 percent in November 1989.[33] Viewed another way, over this period, the percentage of households not subscribing to telephone service declined from 8.6 to 7.0. This 19 percent reduction in the percentage of households without service represents substantial progress during the very period in which rates were rebalanced by the FCC.[34]

Further progress has occurred since 1989. By November 1994, the percentage of subscribing households had risen to 93.8, while the percentage without service had declined to 6.2 percent or by another 9 percent, bringing the cumulative decline in households without service to about 28 percent since divestiture. By October 1994, flat rates (not including touch-tone) had increased by another $1.47 to $19.00 per month.

Substantial subscription gains were also made by households below the poverty level. We estimate that 77 percent of households below the poverty level subscribed to telephone

---

[31] L.J. Perl and W.E. Taylor, "Telephone Penetration and Universal Service in the 1980s," in B. Cole (ed.), *Divestiture Five Years Later*, New York: Columbia University Press, 1989.

[32] Residential unlimited rates, excluding these increases rose from $12.10 to $12.30 in the same time period. FCC *Statistics of Communications Common Carriers, 1994-95.* Table 8.4, at 340.

[33] These penetration figures are based on the Census Bureau Current Population Survey (CPS). The CPS estimates are similar to but somewhat lower than those based on data gathered during the decennial census. The CPS figures appear to be lower because of minor differences in the questions asked in the two surveys and in sampling techniques. According to the FCC, the actual figure may be between the two. See the FCC's *Telephone Subscribership in the United States* (by Alexander Belinfante), April 1995, at 2.

[34] Note that progress was also made according to the data reported in the decennial census of households. Using those data, which use a slightly different measure of telephone penetration, subscription rose from 92.9 percent in 1980 to 94.8 percent in 1990. During this period, flat rates increased from $8.74 to $17.79 in nominal dollars. Adjusted for inflation, the increase was only about $3.12, from $11.02 to $14.14 in 1984 dollars. Data from FCC *Telephone Subscribership*, April 1995, at 2; FCC *Trends*, February 10, 1995 (Updated) Table 8, at 13; *Statistical Abstract of the United States, 1995*, Table 762, at 493, and *1991*, Table 769, at 476.

service (i.e., 23 percent did not subscribe) in 1983, and in 1994 the corresponding figures were 84 percent and 16 percent. Non-subscriber households below the poverty level declined by about 29 percent between 1983 and 1994, implying, in fact, a somewhat greater improvement in the subscription performance of these households than of those above the poverty level or in the general population.[35] Table 1[36] summarizes the progress by these groups since 1983.

Table 1. Percentage of Households With and Without Telephone Service, 1983-1994

	Household Income Group					
	Below Poverty Level		Above Poverty Level		Total	
	With	Without	With	Without	With	Without
1983	77.1	22.9	94.4	5.6	91.4	8.6
1994	83.7	16.3	95.8	4.2	93.8	6.2
% Change	8.6	-28.9	1.6	-26.1	2.6	-27.9

B. Subscription Growth is Attributable to Small Growth in Real Subscriber Access Prices, Decline in Other Prices, Income Growth, and Other Factors

Residential demand for telephone access service is related to real (i.e., inflation adjusted) prices for flat-rated and measured service. connection charges, toll rates, income and

---

[35] Because poverty levels are given by household size, we first estimated the average size for an impoverished household from *The Statistical Abstract of the United States, 1995*, Table 65. at 57, and Table 753, at 484. Then we used this figure, 2.97, to find the average poverty threshold level, in household income, using linear interpolation between the poverty threshold for 2-person households and 3-person households for each year from 1983 to 1994. Finally, we applied the income levels to FCC data on penetration to find the average penetration rate for households below the poverty threshold. Note that this approach is somewhat imprecise. The income distributions used for the poverty levels by the Statistical Abstract is more coarse than those used for the FCC telephone penetration. However, it is clear from the FCC data that progress has been achieved for all income groups.

[36] Data based on *The Statistical Abstract of the United States, 1995*, Tables 65, 726, 746, and 753, at 57, 471. 481, 484 respectively; *The Statistical Abstract of the United States, 1986,* at 447. and the FCC *Telephone Subscribership* Report, April 1995, Table 4.